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**A CASE OF ORGANIC AMNESIC DISORDER SYNDROME  
DIAGNOSED WITH FMRI**

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Michihiko Koeda,<sup>1</sup> Yuichi Takizawa,<sup>1</sup> Kaoru Minagawa,<sup>1</sup> Masahiro Yamamoto,<sup>1</sup> Tetsuya Ichimiya,<sup>2</sup> Amane Tateno,<sup>1</sup> Pascal Belin,<sup>1</sup> Yoshiro Okubo.<sup>1</sup> <sup>1</sup>Voice Neurocognition Lab, Dept of Psychology, Centre for Cognitive Neuroimaging, University of Glasgow, 58 Hillhead Street, Glasgow, G12 8QB; <sup>2</sup>Department of Neuropsychiatry, Nippon Medical School, 1-1-5, Sendagi, Bunkyo-Ku, 113-8603, Tokyo, Japan

**Objective** Post-concussion syndrome after traffic accident is often clinically associated with prolonged cognitive impairment due to brain lesions, but sometimes a symptom like amnesia may occur without structural abnormality in neuroimaging. The question is whether cognitive impairment may be caused by subtle lesions that cannot be detected with conventional structural MRI or CT. We report a case in which measurement of cognitive function with functional Magnetic Resonance Imaging (fMRI) was useful to assess the organic origin of an amnesic disorder after concussion.

**Method** A 48 year old female suffered from prolonged memory disturbance after concussion. Her brain structural CT and MRI (T1 and T2) appeared normal. Her consciousness level was alert. Insomnia, physical anxiety, and depressive symptom were not observed. In order to investigate cerebral function with regards to memory processing, we carried out an fMRI study to test working memory (WM) for emotional voice stimuli from the Montreal Affective Voices. Furthermore, the neurobehavioral cognitive status was tested with a battery of neuropsychological tests (Cognistat).

**Results** Brain structural CT and MRI were normal, however, the patient's cerebral activation was significantly reduced in the bilateral hippocampi and left inferior frontal gyrus compared to 14 healthy control subjects in the WM vs Rest contrast. Furthermore, amnesic deficits were observed in Cognistat.

**Conclusion** These results demonstrate that fMRI along with neuropsychological assessment is a useful tool to unravel organic origin of an amnesic disorder even if structural brain imaging appears normal.